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EXAMINER

HAN, QI

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2626

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12/01/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/802,835	Applicant(s) FOURQUIN ET AL.	
	Examiner QI HAN	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Amendment

2. This communication is responsive to the applicant's amendment dated 08/21/2009. The applicant(s) amended claims 1-21 (see the amendment: pages 4-10).

The examiner withdrew the previous disclosure objection (i), because the applicant amended the corresponding content(s) of the specification. However, the disclosure objection (ii) will be sustained because the arguments are not persuasive (see detail below).

The examiner withdrew the previous claim rejection under 35 USC 112 2nd, because the applicant amended the corresponded claim(s).

Response to Arguments

3. In response to applicant's arguments regarding disclosure objection (ii) that "if the Examiner is requiring correction or deletion of "power peak corresponding to the fundamental frequency of a vowel," Applicants respectfully request the Examiner's explanation as to why the Examiner believes that a power peak cannot indicate the fundamental frequency", it should be pointed out that the examiner had clearly and specifically provided the requested explanation (see detail in the sections of "Response to Argument" (bridge paragraph of page 3-4) and the disclosure objection (ii) (bridge paragraph of pages 8-9 of the previous office action filed

Art Unit: 2626

05/29/2009). However, the applicant failed to response to and/or totally ignored the examiner's explanation/analysis. Further, it is noted that in the objection, the examines states that "Appropriate correction/clarification is required" (not including deletion as applicant argued above), but the applicant failed to do so. It should be also pointed out that the applicant twisted and wrongly interpreted the examiner's language in the objection as a whole, and selectively attacked the portion or individual term (such as "normally") and concluded that "it appears that the Examiner is unsure whether the power peak may indicate the fundamental frequency", but totally ignored the other related portions/statement/analysis in the objection, such as "the power peak does not mean or correspond to "the fundamental frequency"" and "in most of time and with various reasons, a power peak is only an nth (wherein n is unknown) harmonic of a fundamental frequency or a formant frequency" (see the objection), so that the arguments are not only unpersuasive but also improper. Furthermore, the applicant is reminded that it is applicant's (**not examiner's**) responsibility to show that the disclosed subject matter in the specification is true and enables to one of ordinary skill in the art to make/use the claimed invention. Thus, at this point, the applicant is required to provide evidence for supporting the objected subject matter/disclosure regarding "power peak corresponding to the fundamental frequency of a vowel".

4. Applicant's arguments filed on 08/21/2009 with respect to the claim rejection under 35 USC 112 1st and/or 103 (see Remarks: page 13-19) have been fully considered but some of them are not persuasive and some of them are moot in view of the new ground(s) of rejection (see detail below).

5. In response to applicant's arguments regarding claim rejection under 35 USC 112 1st (see Remarks: page 13, paragraph 2 to page 16, paragraph 3), the examiner respectfully disagrees with the applicant's arguments and has a different view of understanding the enablement rejection and the related rejected subject matter. It should be pointed out that the applicant's arguments mislead and/or twisted the meaning/principle of the enablement rejection under 35 U.S.C. 112 1st. For example, the applicant's arguments that "MPEP § 2164.01(b) states that "[a]s long as the specification discloses at least one method of making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, then the enablement requirement of 35 U.S.C. 112 is satisfied." As long as undue experimentation is not required, the specification is deemed to meet the enablement requirement of 35 U.S.C. § 112, second paragraph. See, e.g., MPEP § 2164.01." (Remarks: page 14), wrongly apply the enablement requirement of 35 U.S.C. 112 to the instant case, because the application includes/discloses **only one** method of obtaining/using the fundamental frequency of the speech signal (see specification: page 6, lines 29-32). It can be seen that no other method/embodiment regarding obtaining/using the fundamental frequency of the speech signal is disclosed in the specification. Further, it is noted that the examiner's statement "there is common technique (i.e. well known art) used in the art for the extraction [of] the fundamental frequency via FFT" recited by the applicant (Remarks: page 14, paragraph 2) is only used for responding the applicant's previous argument, it does not described in the specification as another method/embodiment at all.

For another example, regarding the applicant's arguments that "Applicants' written description sets forth in full, clear, concise, and exact terms the subject matter of claim 3. See,

Art Unit: 2626

e.g., Applicants' specification at page 5, lines 28-30. One of ordinary skill in the art would clearly understand from this how to do what is claimed (e.g., replace the fundamental frequency of one signal with the fundamental frequency of another signal). 35 U.S.C. § 112, first paragraph, does not require anything more” (Remarks: page 15), it can be seen that the applicant, again, failed to provide persuasive response and totally ignored the examiner’s specific analysis in the rejection. Further, it should be pointed out that 35 U.S.C. § 112, first paragraph states that “The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as **to enable any person skilled in the art to which it pertains, or with which it is most nearly connected**, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention”, which **does require more** than the above arguments, in which the applicant intentionally missed the most important portion of “**to enable any person skilled in the art to which it pertains, or with which it is most nearly connected...**” Furthermore, the test of enablement further involves the “undue experiment” (see MPEP 2164 and the related case law(s)), which is clearly recited in the analysis of the rejection but failed to be specifically provided in the applicant’s response/argument(s).

For further example, regarding the applicant’s arguments that “t[T]here is **no requirement** that every sentence in the written description enable, or even support, **every claim limitation**” (Remarks: page 15), the examiner disagrees with the applicant's argument and has a different view of understanding of enablement rejection under 35 U.S.C. 112 1st. It is noted that if there is a claimed limitation that is not supported by the specification for enablement requirement, the claim, as a whole, cannot be considered to meet enablement requirement of 35 U.S.C. 112 1st.

Art Unit: 2626

In addition, it is noted that the examiner's enablement rejection is based on a consideration of the combined aspects as stated in the rejection (also see above), the applicant also failed to and totally ignored this combined consideration.

For above reasons, the applicant's arguments are not persuasive and the rejection is sustained.

6. Finally, it is noted that the previous cited references are still applicable to the amended claims having new issue/ground for prior art rejection (may include newly combined teachings and/or interpretations), so that the response to the applicant's arguments based on the newly amended claims (see Remarks: pages 17-19) is directed to the corresponding prior art claim rejection with necessitated new ground(s) (see detail below).

Specification

7. The disclosure is objected to because of the following:

on page 6, lines 29-34, the statement "said (a) power peak corresponding to the fundamental frequency of a vowel" is not true, since a power peak only indicates one of harmonics and normally not the fundamental frequency. The examiner agrees that FFT can be used to detect "the presence of a power peak in the frequencies constituting the spectrum" (specification: page 6, line 29-25), but, the power peak does not mean or correspond to "the fundamental frequency". The examiner's own experience is evidenced that in most of time and with various reasons, a power peak is only an nth (wherein n is unknown) harmonic of a fundamental frequency or a formant frequency, so that the statement is incorrect and inefficient

Art Unit: 2626

for obtaining fundamental frequency of the signal. In order to find a fundamental frequency, more process(es) need to be done, but the applicant did not disclose them. Appropriate correction/clarification is required.

Claim Rejections - 35 USC § 112

8. Claims 3-4 and 14-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims 3 and 14, the claimed limitation “mixer is further to replace the fundamental frequency of the speech signal by the fundamental frequency associated with a note of the music signal” lacks enablement to one of ordinary skill in the art based on the disclosure of the specification (see the closet disclosure of the specification: page 5, line 28 to page 6, line 34). This enablement problem is related three aspects.

Firstly, it is noted that the disclosure "said power peak corresponding to the fundamental frequency of a vowel" (page 6, line 31-32) is incorrect and inefficient to obtain a fundamental frequency of the signal, and nowhere in the specification specifically describes how to obtain/extract a fundamental frequency of the speech signal. The examiner agrees that FFT can be used to detect “the presence of a power peak in the frequencies constituting the spectrum” (specification: page 6, line 29-25), but, the power peak does not mean or correspond to “the fundamental frequency”. The examiner’s own experience evidenced that in most of time and with various reasons, a power peak is only an nth (wherein n is unknown) harmonic of a

Art Unit: 2626

fundamental frequency or a formant frequency, so that extraction of a fundamental frequency is much more complicated than detecting a power peak. That is why the examiner stated that the recitation “is incorrect and inefficient to obtain a fundamental frequency of the signal”. The examiner has no disagreement that there is common technique (i.e. well known art) used in the art for the extraction the fundamental frequency via FFT. The problem is that the applicant **expressly** says the **incorrect** statement in the specification, so that the examiner has reasonable doubt and responsibility to challenge enablement of the claimed invention

Secondly, it is well known in the art that the range of fundamental frequency of human speech is much narrower than that of musical instruments, so that the replacement cannot be easily implemented by one of ordinary skill in the art without solving this range problem; otherwise, the replacement cannot be enabled or lacks meaningful operation. There is no evidence in the specification to specifically describe how to solve this problem. It is known in the art that the fundamental frequencies of both speech signal and music signal are dynamically changed in different range, speed and trend, so that the replacement, in actual and practical application, involves much more complicated alignments of fundamental frequency itself and its harmonics than just a simple replacement of one frequency with another as claimed. It is should be clear that this enablement issue is regarding the invention’s objective that is aimed to offer some meaningful service (specification: page 2, lines 20-23), **not** whatever mixed junk sound produced. For example, it cannot be enable one of skill in the art to replace a slow changed fundamental frequency around 100 Hz of a voiced speech signal having a first formant frequency around 300 Hz with a fast moved fundamental frequency between 500-1000 Hz of a music signal to provide meaningful service, even using “a simple replacement of one frequency with another”.

Art Unit: 2626

Similar results are also applied to the situation of big difference(s) between speech and music signals in terms of various combinations of fundamental frequency range, speed and trend.

Thirdly, it is noted that the claim limitation (replacing frequency) conflicts with the specification disclosure that states “a proportion Y% of a **musical** sinusoidal signal deduced from the signal S2 **is substituted** for a proportion X% of the speech sinusoidal signal” (replacing percentage) (page 5, line 35 to page 6, line 2). In this case, the replacing frequency conflicts with replacing percentage of the sinusoidal signal because they cannot be compatible.

Therefore, considering all three aspects together, the claim contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention, **without undue experimentation**.

Regarding claims 4 and 15, the rejection is based on the same reason as described for claims 3 and 14, because the dependent claims include or inherit the same or similar problematic limitation as their parent claim(s).

Claim Rejections - 35 USC § 103

9. Claims 1-7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over PAWATE et al. (US 5,641,927) hereinafter referenced as PAWATE in view of BOSS et al. (US 5,915,237) hereinafter referenced as BOSS.

As per **claim 1**, PAWATE discloses ‘autokeying for musical accompaniment playing apparatus (audio device)’ (title), comprising:

“receive an analog [speech] signal [representing a spoken message]” (Fig.2, 'user's vocal'),

Art Unit: 2626

“convert the analog [speech] signal into a digital [speech] signal comprising at least one [speech] signal fundamental frequency” (Fig. 2 shows a microphone and ‘pitch (corresponding to fundamental frequency) estimator 23’),

“store a set of coded data [representing a musical score comprising a set of notes, each note being defined by a note fundamental frequency, a duration, and an instrument that plays said note]” (col. 2, lines 54-67, ‘the key (corresponding to pitch) of the music may also be stored in the CD data (set of coded data) field so not have to be computed’),

“extract a digital music signal from the set of coded data” (col. 2, lines 54-67, ‘the pitch estimated and averaged from the original artist’s voice (musical signal), or key (corresponding to pitch) from the background music or that from the CD data field is compared (necessarily extracting music from the related data)’), and

“combine (mix) a first portion of the digital [speech] signal and a first portion of the digital music signal to produce a combined digital signal” (col. 3, lines 1-40, ‘change the key (portion of music) of background music’ and ‘output (produce) to the mixer 13a to add the user’s vocal (portion of the input digital signal); also see Figs, 2 and 2a).

It is noted that PAWATE does not expressly disclose the input signal being “**speech** signal representing a spoken message” and the coded data “representing a musical score comprising a set of notes, each note being defined by a fundamental frequency, a duration, and an instrument that plays said note”. However, this feature is well known in the art as evidenced by BOSS who discloses ‘representing speech using MIDI (musical instrument digital interface)’ (title), comprising well known feature of MIDI data for generating music including ‘identifying a musical instrument (i.e. piano, clarinet) for music generation, turning on a note (reflecting a

Art Unit: 2626

musical score) or altering a parameter in order to generate or control sound' (col. 2, lines 7-30), which necessarily/inherently includes parameter data of pitch (corresponding to fundamental frequency) and the related time stamps (corresponding to duration) for the music note; 'encoding a digitized speech into a standard digital format, such as MIDI' (col. 2, lines 67 to col. 3, line 5); and using 'a MIDI compatible signal' for processing and storing 'speech segments (speech signal representing a spoken message)' in 'the phoneme dictionary' including parameters of 'pitch' and 'duration' (col. 5, line 45 to col. 6, line 28). BOSS also discloses 'mixer 204, ...receives a digitized speech signal...and a digitized music signal... and mixes the two signals together to form a single audio output' (col. 13, lines 30-45), which further supports the claim rejection. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify PAWATE by providing a compatible standard digital format, such as MIDI, for representing a speech and/or music signals, as taught by BOSS, for the purpose (motivation) of efficiently representing, storing and transmitting sound/audio signal(s) including music and/or speech signals (BOSS: col. 2, lines 27-29 and 56-61; col. 13, lines 58-61).

As per **claim 2** (depending on claim 1), PAWATE in view of BOSS further discloses "a digital signal processor comprising the mixer" (PAWATE: col. 2, line 45 and Fig. 1, block 13).

As per **claim 3** (depending on claim 1), as best understood in view of the rejection under 35 USC 112 1st (see above), it is noted that the combined references disclose using the mismatch between the two estimated pitches (corresponding to fundamental frequencies) of user and reference (background music) to change (substantially replace) the key (or pitch) of background music (PAWATE : col. 3, lines 1-16 and Figs. 2-2a), which is different from claimed "replace the fundamental frequency of the speech signal by the fundamental frequency associated with a

Art Unit: 2626

note of the music signal.” However, it would have been obvious to one of ordinary skill in the art to use the same mismatch to change (replace) user’s pitch instead of reference’s pitch in the same manner, so as to produce the predictable result of the user’s speech with a characteristic of the reference’s (music’s) pitch. It is noted that estimating and comparing pitches uses the same known technique (as taught by PAWATE), and changing (replacing) pitch from one to the other (i.e. from reference’s pitch to user’s pitch, or from user’s pitch to reference’s pitch) uses the same known method, so that, one of ordinary skill in the art would have recognized that solving the difference based on the teachings of PAWATE in view of BOSS would have been obvious to the skilled person in the art, because the implementation would be within the scope of capability of the skilled person in the art and the result would be predictable.

As per **claim 4** (depending on claim 3), as best understood in view of the rejection under 35 USC 112 1st (see above), PAWATE in view of BOSS further discloses “the fundamental frequency of the speech signal is replaced by the fundamental frequency associated with the note of the music signal during a period substantially equal to the duration of the note” (BOSS: col. 5, lines 1-47, since the speech encoded into MIDI compatible signal, the time stamp (inherent feature reflecting duration) of a note in music could be easily used to associate with the related phoneme duration, as claimed).

As per **claim 5** (depending on claim 1), PAWATE in view of BOSS further discloses “add to the combined digital signal a second portion of the digital speech signal” (PAWATE: col. 3, line 8 ‘to add the user’s vocal’ reads on second portion of said digital speech signal; col. 4, lines 13-56, ‘envelop’, ‘residual’ and ‘lpc’ can also be broadly interpreted as second portion of said digital speech signal).

Art Unit: 2626

As per **claim 6** (depending on claim 1), PAWATE in view of BOSS further discloses “add to the combined digital signal a second portion of the digital music signal” (PAWATE: col. 3, lines 1-16, wherein other music portions excluding key (or pitch) can be broadly interpreted as second portion of said digital music signal).

As per **claim 7** (depending on claim 1), PAWATE in view of BOSS further discloses “replace at least one harmonic frequency of the fundamental frequency of the speech signal with a harmonic frequency of the fundamental frequency associated with a note of the musical signal” (PAWATE: col. 8, lines 1-4, ‘indicate second or third harmonic’; BOSS: col. 6, lines 29-53, ‘measure the pitch of the phoneme represented by the received phoneme pattern by...spectral compression and harmonic matching method’; col. 7, line 25 to col. 8, line 26, ‘MIDI standard’ that inherently includes parameter for timbre (corresponding to harmonic)’; one of ordinary skill in the art would have recognized that the result of matching harmonic(s) could be used for changing (or replacing) certain harmonic(s) of the user or reference (music) in the same/similar way as for changing/replacing pitch, so that the output audio (result) would have a sound characteristic of harmonic(s) of the music (achieving predictable result), and vice versa).

As per **claim 10** (depending on claim 1), PAWATE in view of BOSS further discloses “a vocoder configured to code the combined digital signal” (PAWATE: col. 3, line 63, ‘phase vocoder’; col. 4, lines 47-61, ‘residual resampling method’ with ‘LPC’ (vocoder feature); BOSS: ‘the MIDI speech signal output...may be transmitted over ...wireless communication, or telephone lines’, so that one of ordinary skill in the art would have recognized that coding the processed signal would be the same as coding normal speech signal by using a vocoder).

Art Unit: 2626

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over PAWATE in view of BOSS applied to claim 1, and further in view of KAGEYAMA et al. (US 5,857,171) hereinafter referenced as KAGEYAMA.

As per **claim 8** (depending on claim 1), even though PAWATE in view of BOSS discloses “mixer” as stated above (see claim 1), PAWATE in view of BOSS does not expressly disclose “discriminating a consonant from a vowel in said digital speech signal” and adapted to activate the mixer. However, the feature is well known in the art as evidenced by KAGEYAMA who discloses ‘a vowel/consonant separator 40 (discriminator)’ so that ‘the consonant and vowel components can be separated (discriminated) from each other by detecting a fundamental frequency’ and ‘the vowel synthesizer 43 generates the vowel signal at the pitch specified by the pitch calculator based on the phoneme data distributed by the phoneme data register 48’ (Fig.2 and col. 6, line 60 to col. 7, line 52), and teaches that ‘the phoneme data track of the song data records only the vowel data of the original or model signer...’, which suggests that the system is adapted to activate a mechanism (i.e. mixer) for mixed signal (after envelope generator 44, Fig 2) during detection of the vowel, as claimed. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify PAWATE in view of BOSS by providing a mechanism of separating vowel/consonant and activating a mixer for a mixing process during detection of vowel, as taught by KAGEYAMA, for the purpose (motivation) of creating a harmony voice having a tone other than that of user (actual player, or karaoke singer) (KAGEYAMA: col. 1, lines 31-32).

Art Unit: 2626

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over PAWATE in view BOSS applied to claim 1, and further in view of KAGEYAMA et al. (US 5,712,437) hereinafter referenced as KAGEYAMA2.

As per **claim 9** (depending on claim 1), PAWATE in view of BOSS does not expressly disclose “a **voice activity detector** configured to control the mixer.” However, the feature is well known in the art as evidenced by KAGEYAMA2 who discloses ‘if the detected state of the signing performance indicates a no voice period’, some functions/structures ‘are disabled’ (col. 5, lines 43-55), which suggests that system has a mechanism (i.e. mixer) of detecting voice activity (so as being a voice activity detector) and determining whether or not a function/component is disabled (so as controlling the function/component). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the mixing means disclosed by PAWATE and BOSS with a mechanism of detecting voice activity for controlling certain function/component as taught by KAGEYAMA2, for the purpose (motivation) of generating a harmony audio signal containing an additional harmony part and/or determining to stop(or start) to harmony sound generation (KAGEYAMA2: abstract and col. 5, lines 54-55).

12. Claims 11-18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over PAWATE in view BOSS applied to claim 1, and further in view of TANIGUCHI et al. (US 5,712,437) hereinafter referenced as TANIGUCHI.

As per **claim 11**, the rejection is based on the same reason described for claim 1 because the claim recites the same or similar limitations as claim 1, except the preamble limitation “a

Art Unit: 2626

telecommunication terminal”. However, the feature is well known in the art as evidenced by TANIGUCHI who discloses ‘music player applicable to portable telephone terminal’ (title), comprising ‘portable telephone terminal (a telecommunication terminal) incorporating a music player device’, ‘CPU’ and ‘speech processor’ for ‘coding/decoding on speech signals’ and producing ‘hold sound mixed with received speech’ (col. 3, line 30 to col. 4, line 11). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify PAWATE in view BOSS by providing a portable telephone terminal and mixing sound with speech, as taught by TANIGUCHI, for the purpose (motivation) of generating BGM (background music) mixed with received speech signals for the system (TANIGUCHI: col. 16, lines 34-56).

In addition, in another view of teachings of PAWATE and BOSS, since PAWATE in view BOSS discloses using ‘a computer system’ implementing the MIDI encoding/decoding systems and including ‘a modem for communicating with one or more other computers via the internet, telephone lines or other transmission medium’ (BOSS: col. 11, line 58 to col. 12, line 16), the computer system can be broadly interpreted as claimed “a telecommunication terminal”. This means that the disclosure by PAWATE in view BOSS can also satisfy the claim for the rejection, based on broadest reasonable interpretation of the claim in light of the specification.

As per **claim 12** (depending on claim 11), PAWATE in view of BOSS and TANIGUCHI further discloses “transmit the combined digital signal to another terminal **in real time**” (TANIGUCHI: col. 9, lines 14-30).

Art Unit: 2626

Regarding **claims 13-18 and 21** (depending on claim 11), the rejection is based on the same reason described for claims 2-7 and 10, because the claims recites the same or similar limitations as claims 2-7 and 10 respectively.

13. Claim 19 is are rejected under 35 U.S.C. 103(a) as being unpatentable over PAWATE in view of BOSS and TANIGUCHI applied to claim 11, and further in view of KAGEYAMA.

Regarding **claim 19** (depending on claim 11), the rejection is based on the same reason described for claim 8, because the claims recites the same or similar limitations as claim 8.

14. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over PAWATE in view BOSS and TANIGUCHI applied to claim 11, and further in view of KAGEYAMA2.

Regarding **claim 20** (depending on claim 11), the rejection is based on the same reason described for claim 9, because the claims recites the same or similar limitations as claim 9.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on

Art Unit: 2626

the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Please address mail to be delivered by the United States Postal Service (USPS) as follows:

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to QI HAN whose telephone number is (571)272-7604. The examiner can normally be reached on M-TH:9:00-19:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571)-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Application/Control Number: 10/802,835

Page 19

Art Unit: 2626

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November 30, 2009

/QI HAN/

Primary Examiner, Art Unit 2626